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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,882	12/02/2003	Yoshihiro Uetani	Q78640	1657
23373	7590	08/12/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			DESAI, ANISH P	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 08/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/724,882	Applicant(s) UETANI ET AL.	
	Examiner Anish Desai	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 10-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/02/2003</u> | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> |

Continuation of Attachment(s) 6). Other: Translation of JP 2002-110245-A.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-9, drawn to a crosslinking polymer supported porous film for battery separator, classified in class 428, subclass 304.4.
- II. Claims 10-12, drawn to a method of producing a battery, classified in class 429, subclass various.

The inventions are distinct, each from the other because of the following reasons:

1. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product (i.e. a crosslinking polymer supported porous film) can be made by different process. For example, instead of supporting crosslinking polymers on the porous film, the crosslinking polymers can be mixed with the electrolyte and then electrolyte with a catalyst can be poured into the battery container.
2. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
3. During a telephone conversation with Mr. Mark Boland on 07/14/05 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-9

Art Unit: 1771

directed towards a crosslinking polymer supported porous film for a battery separator.

Affirmation of this election must be made by applicant in replying to this Office action.

Claims 10-12 are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Yuji et al. (Japanese Patent Publication No. 2002-110245).

6. Regarding claims 1 and 2, Yunji et al. teach a lithium ion secondary battery, which uses a solid polymer electrolyte (see Abstract, page 6) and a liquid crosslinkable composition for the solid electrolyte (Paragraph [001], page 15). The liquid crosslinkable composition for the solid electrolytes comprises radically polymerizable monomers of oxetane ring containing monomer and epoxy group containing monomer

Art Unit: 1771

(Paragraph [0011], Page 24). Moreover, Yunji et al. teach a battery separator (Paragraph [004]). Although, Yunji et al. do not explicitly teach that the separator is porous, it is necessary that the battery separator be porous in order to allow movement of ions. Additionally, Yunji et al. teach that the liquid crosslinkable composition containing oxetane group and epoxy group is injected into the airtight container, which has units such as electrodes and separator (Paragraph [0020], pages 32 and 33). The liquid composition infiltrates into gaps such as electrode and a separator. Regarding claim 2, the oxetane ring containing monomer of Yunji et al. contains 3-oxetanyl group (Paragraph [0013], page 25).

7. Regarding claim 3, in addition to the above disclosed matters of Yunji et al., the liquid crosslinkable composition contains the other radically polymerizable monomer (Claim 2, page 7).

8. Regarding claim 4, Yunji et al. teach that the quantity of the radically polymerizable monomer with oxetane ring and another radically polymerizable monomer is 5 to 50% by weight (Claims 2 and 3, Page 7).

9. Regarding claim 5, Yunji et al. disclose that quantity of radically polymerizable monomer having epoxy group and the other radically polymerizable monomer is 5 to 50% by weight (claims 4 and 5, page 8).

10. Regarding claims 6 and 7, Yunji et al. teach the claimed 3-oxetanyl group containing (meth) acrylate formula (I) on page 25 and claimed epoxy group containing (meth) acrylate formula (II) on pages 26 and 27 respectively.

Art Unit: 1771

11. Regarding claim 8, Yunji et al. teach the claimed formula III and IV on Pages 27 and 28.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yuji et al. (Japanese Patent Publication No. 2002-110245).

13. The invention of Yunji et al. is previously disclosed. In addition to previously disclosed matters, Yuji et al. disclose a winding of positive and negative electrodes through a nonwoven fabric (Paragraph [0030], page 41). The examiner is equating the nonwoven fabric of Yuji et al. as the claimed separator. Yuji et al. teach the thickness of the nonwoven fabric to be 20 micrometer.

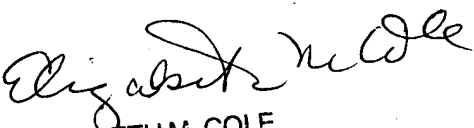
14. Regarding the claimed porosity, Yuji et al. teach the claimed invention except that the porosity of the porous film to be 20-95%. The porosity is considered to be a result effective variable. As the porosity of the porous film increases, the conduction of the ions also increases. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the porosity of the porous film to be 20-95%, since it has been held that discovering an optimum value of a result

Art Unit: 1771

effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Information Disclosure Statement

The information disclosure statement filed on 12/02/2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.


ELIZABETH M. COLE
PRIMARY EXAMINER

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anish Desai whose telephone number is 571-272-6467. The examiner can normally be reached on Monday-Friday, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

APD